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By-Sigel, Irving

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Parts I and II of a four-part report on a study of the relevance of existing knowledge about child development to social science curriculum development are combined in this document. Part I explores the problem of inadequate communication between the developmental psychologists and curriculum workers and suggests some directions for cooperative efforts involving the two groups. Part II is an account of a test run of such a cooperative effort in which the findings of developmental psychologists were applied to the specific problems of social science educators. Part II pertains to an age group of 10- and 11-year-olds. (MS)

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SOCIAL SCIENCE EDUCATION CONSORTIUM

CHILD DEVELOPMENT AND SOCIAL SCIENCE EDUCATION.

PART I: THE PROBLEM
PART II: CONFERENCE REPORT

Irving Sigel
Merrill-Palmer Institute of Human Development and Family Life

U. S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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CHILD DEVELOPMENT AND SOCIAL SCIENCE EDUCATION.

PART I: THE PROBLEM
PART II: CONFERENCE REPORT

Irving Sigel
Merrill-Palmer Institute of
Human Development and
Family Life

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Irving Morrissett, Executive Director
Purdue University, Lafayette, Indiana

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FOREWORD

This publication contains Parts I and II of a four-part report on a study of the relevance of existing knowledge about child development to social science curriculum development. The study, directed by Dr. Irving Sigel, of the Merrill-Palmer Institute of Human Development and Family Life, was supported by a developmental contract of the United States Office of Education, made with Purdue University for the Social Science Education Consortium.

Part I describes the problem of inadequate communication between developmental psychologists and curriculum workers, and suggests some directions for cooperative efforts between the two groups. Part II reports on a test run of such a cooperative effort, in which developmental psychologists applied the findings of their profession to specific problems posed by social science educators.

Part III consists of 67 abstracts of child development source materials which the Merrill-Palmer group felt are most relevant to the problems of constructing sound social studies curricula. Part IV is "A Teaching Strategy for the Social Sciences Derived from Some Piagetian Concepts".

It is the hope of the Consortium that these reports will help point the way to a much more extensive cooperative effort between developmental psychologists and social science curriculum workers.

Irving Morrissett

March, 1966

PART I:

REVIEW OF THE PROBLEM

Irving Sigel
Merrill-Palmer Institute of
Human Development and
Family Life

REVIEW OF THE PROBLEM

There is considerable ferment in the educational world concerning curriculum revisions. Since the launching of Sputnik, educators have been engaged in frenzied activities updating and revising curricula in the natural sciences and mathematics. A sense of urgency has led to ever-expanding activity in curriculum reorganization and innovation. This activity has been further energized. This by a knowledge explosion, with great leaps forward being made in virtually every field of knowledge from anthropology to zoology.

The result has been revisions in curricula for all educational levels in virtually every discipline. Innovations have appeared in elementary school mathematics and high school physics, in elementary grade economics and secondary social sciences.

There has been considerable haste in these developments, as though energy had been dormant during the earlier periods when educational change proceeded at a slower and more leisurely pace. In the haste with which novel curricula have been undertaken, there has been a tendency to overlook the very organism for whom all these changes are ostensibly being made - the child. The intent of the innovative educator should be to prepare the <u>child</u> to cope with an ever changing world of knowledge.

<u>The Potential Contribution of Developmental Psychology</u>

It is our contention that curriculum revision, without consideration of the nature of the developing child, will prove of far less value than anticipated. The logic for this position rests on the assumption that the child's ability to assimilate and generalize new knowledge depends on his intellectual and emotional status. Intellectual status does not mean I.Q., but rather the child's developmental or maturity level.

Recent discoveries in developmental psychology have demonstrated the step by step processes of intellectual growth. At each stage the child is capable of assimilating knowledge in certain ways and under certain conditions. Unless the requisite intellectual processes have been acquired, clever presentation of materials alone will not be sufficient to produce desired outcomes.

The great theoretical and empirical gains made in the last decade in developmental psychology have not had an appropriate or profound effect on

curriculum revisions. With few exceptions, the curriculum innovators, particularly in social science, have worked within a framework of the subject matter and have taken little cognizance of the recent work in child development. The relative lack of communication and integration between these two streams of knowledge is a disservice to both. How can curriculum be revised unless account is taken of the nature of the consumer of that knowledge? And how can we learn about the child's intellectual development unless we are better aware of the educational experiences to which the child is exposed? Each of these fields of endeavor stands to gain from increased interaction.

To document the assertion of the relative lack of integration between developmental psychology and social science curriculum development, we undertook a limited survey of some of the leading social studies texts for teachers. We found that, although formal notice was taken of the importance of child psychology in curriculum development, little effort was made to tie these two together. When it was done, it was in the most general, and frequently insupportable, ways. For example, it is assumed that children are self-centered and are primarily interested in things that are physically close to them. This assertion does not square with the everyday observation of children's interest in cowboys and dinosaurs, both far away from the urban child of the 1960's. It is also commonly said that children are very concrete and literal, and incapable of conceptual thought, but recent research demonstrates that children as young as six or seven are capable of certain kinds of conceptual thought.

In addition to the child and the curriculum, a third ingredient in the education process is the teacher. His style or manner of teaching is expecially important. Here too a number of researches have been undertaken, assessing the efficacy of various means of teaching--for example, the inquiry and discovery method, where the child is encouraged to seek out answers with the guidance of a leader. The impact of teacher strategies and the effectiveness of some have been studied (Scott & Sigel, 1965).

Curriculum modification, child development and teacher strategy are closely interrelated; one must attend to all of these if he is interested in maximizing the impact of any one of the three. Because of these considerations, there must be an active dialogue between educators and child developmentalists as well as between child developmentalists and the curriculum builders.

With these commitments in mind we undertook two types of activities: 1) creation of a dialogue between social scientists and developmental psychologists

(see Part II, Report on Developmental Research Conference), and 2) a review of child development research publications, to assess the status of our knowledge regarding the child's social science concepts--the key to his eventual understanding of social science (see Part III, Abstracts of Some Child Development Literature). Since the Conference Proceeding is included in this report, there is no need to summarize it here.

In the research on the development of concepts relevant to social science, we surveyed some 200 articles describing how and at what level children understood the meaning and significance of such concepts as kinship, political leadership and justice. Of course, there are gaps in our knowledge in many areas. This is because there has not been consistent or intensive interest in all areas. Topics such as moral judgment, political attitudes and awareness, for example, have received greater attention than the child's conception of free enterprise or taxation.

Although it is not for us to explain the variety and unevenness of research in these fields, it is tempting to speculate about the reason, and such speculation is relevant to our discussion. The variegated pattern may well be due to the fact that for many fields, e.g., economics and anthropology, little was expected from children. These fields, for example, are considered too complex or too irrelevant for the very young. Some have felt we should leave these disciplines to college, ignoring the fact that children find themselves handling money and engaging in economic transactions very early in life. The decision to exclude social science needs justifying just as much as the decision to include it. The timing and method of introducing economics, for example, should be based on some prior knowledge of the child's ability to understand as well as on the usefulness of economic knowledge to the child. The latter seems easier to decide than the former, although alone it may not be a sufficient reason for introducing economics.

In sum, the developmental psychologist has an important and significant role to play. It seems that until his work and the research in his field are made integral to curriculum building, much will be lost between the curriculum innovations and the child consumer.

THE RELATION BETWEEN RESEARCH AND CURRICULA

The best way to demonstrate the relationship between curriculum development and research on child psychology is by referring to a study by

Charlotte Stafina Huck on "The Nature and Derivation of Young Children's Social Concepts"*. Huck investigated the nature and amount of information possessed by suburban children in the first grade with respect to certain areas of social sciences, including political, economic, and sociological phenomena. She was also interested in determining, when possible, what the stated sources of the children's information were, as well as ascertaining the relationship between the level of understanding and the sources of information. Working with 114 first grade children in five schools in north Chicago, she interviewed them about a variety of concepts. Historical topics such as dinosaurs, pyramids, Columbus and Pilgrims were investigated, as well as the children's knowledge of political concepts such as community helpers, taxes and elections. She found that boys seem to have a greater fund of information concerning certain social science areas than girls. All children were relatively well informed on technological and recreational concepts. Historical concepts seem to have little meaning for either boys or girls, but the areas which are most remote from the present are the first to be learned. In general, she found that the children had partial knowledge rather than complete knowledge of many of these things.

These children apparently know far more when they come to school than is expected by the teacher who accepts the common assumptions mentioned earlier. Many social science curricula in the first grade tend to overlook the child's interest in the past, accepting the assumption that children are more interested in things in the immediate environment, such as the postman and the policeman. Research indicates that this is a naive concept. Children have a broader range of information and, consequently, a broader range of data to use when discussing social science than has been credited to them. This should suggest to curriculum planners that the notion that children are initially interested in the community and only later in larger units is outdated. Huck's study and others of a similar nature raise some serious doubts about the validity of the rationale of many social science curricula.

A number of other studies in the area of children's concepts of the flag, of patriotism, and of economics, all tend to indicate that the child's capacity to think and to reason, his knowledge about his world, and the way he can deal with that knowledge, are not reflected in our current curricula.

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*Northwestern University, unpublished Ph.D. dissertation, Field of Education, 1955.

Research of this type, reported to curriculum builders, should create considerable pause for thought and reflection. The only way that the necessary liaison can be carried out is to establish rather close working relationships between curriculum builders and child development experts, particularly those interested in cognitive growth and development.

DIRECTIONS FOR THE FUTURE

The Conference Proceedings provide a valuable first step in devising a conceptual framework within which one can think about the developmental sequence of logical thought and reasoning in children. Use of this information, together with an assessment of the state of a child's knowledge, provides us with an opportunity to develop a curriculum which is based on the child's cognitive competence. Recognition of the way in which children at a particular stage think, reason, and organize knowledge provides a rationale for the selection of material and its method of presentation.

Many questions are still to be answered by futther research but, in the meantime, there is need for continuous dialogue between the experts in both fields. It is our contention that only by such integrated efforts can the curriculum be rationally based on our current knowledge of the child's psychological development.

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PART II:

REPORT ON
DEVELOPMENTAL RESEARCH CONFERENCE

Irving Sigel
Merrill-Palmer Institute of
Human Development and
Family Life

CONFERENCE PARTICIPANTS

Irving Sigel, Conference Chairman	Director, SSEC Child Development Research Project
John Flavell	Associate Professor of Psychology, University of Minnesota
Charles Smock	Professor of Psychology, Department of Child Development and Family Life, Purdue University
John Weiss	Associate Professor of History, Wayne State University
John Lohman	Member of Curriculum Project Staff, University of Michigan
Irving Morrissett	Director, SSEC
Elinor Waters	Member, SSEC Child Development Research Project Staff
Frank H. Hooper	Member, SSEC Child Development Research Project Staff

REPORT ON DEVELOPMENTAL RESEARCH CONFERENCE

Introduction

This report summarizes the main issues and discussion areas of a working conference held on February 5th and 6th, 1965, at the Merrill-Palmer Institute of Human Development and Family Life, Detroit, Michigan. The main focus of this meeting was the potential contribution of developmental studies of school-age children to the planning and use of social studies curricula. Initially, the possible relation of current research on cognitive processes to the disciplines of history and political science was examined. Emphasis was placed on the theory of cognitive development by Jean Piaget. Using the central concepts of political science outlined by Professor Roberta Sigel of Wayne State University, Professor John Flavell suggested particular cognitive acquisitions necessary for understanding these concepts. The presentation served as a guide for the first day's discussion among project workers, developmental psychologists and social scientists.

Flavell suggested that integration of cognitive abilities with social concepts occurred at particular age levels. In the eleven catagories which are summarized below, the age level is taken as 10-11 years unless otherwise noted, although age determinations are approximate since the acquisition of skills is a gradual process of mastery and generalization influenced by experience and other maturational factors. No effort has been made in the following summary to distinguish the contributions of the various conference participants. However, it should be noted that Professor Flavell contributed much of the discussion, particularly the elaborations and examples which immediately follow his suggested cognitive acquisitions.

Cognitive Requisites for Social Science Readiness

SOCIAL SCIENCE CONCEPTS	COGNITIVE ACQUISITIONS
1. Causal structure of historical or political outcome. The notions of positive, negative, and neutral events in the context of that outcome. Concepts of multi-determination of historical and political outcomes. Concept of causes continuously operating across extended time periods.	The ability to think in terms of natural causes. The ability to regard events as determined by specific other events. The ability to conceive of a variety of types of causes, e.g. personal vs. impersonal or individual vs. group.

Whereas children of five or six, for various reasons, could not understand this concept, there is evidence that children of ten or eleven are beginning, at least with respect to physical events, to have some rational and mature ideas about the nature of causes. They are beginning to look for examples of continuity between physical cause and physical effect. However, there is a difference between spontaneous, self-initiated concept usage and situation-induced usage. In general, children of 11 years have reached only the latter stage. Yet they are able to appreciate cause and effect in their world if the idea is suggested to them.

It is relevant to ask if the child who has the intellectual structure to cope with physical, concrete causality could cope with social causality. In other words, is there a transfer of competence from one area of knowledge to another? Professor Flavell thought there would be, but said there is little experimental evidence to support this assertion. A circumstance which favors early understanding of social causality is the fact that the child has earlier direct experience in social events, particularly parent-child interactions, than he has of 'mechanical causality'.

Rudiments of psychological causality, understanding the things that move people to act as they do, appear at approximately this age. Notions of human motivational determinants allow the child to understand how a group of people acting in concert, dressed as Indians, would do things which none of them would do individually on the street in ordinary clothes.

Understanding multiple causality is extremely difficult for a child if certain primary conceptual abilities are not present. The younger child is more likely to focus upon a single cause or aspect of an event to the exclusion of other dimensions and causes. Competence in multiple, simultaneous classification, and hierarchial relations, is a prerequisite for the acquisition of the concept. For example, if a student writing about Cardinal Richelieu wishes to be as objective as possible about his life, he must consider the implications of being both a Frenchman and a member of the Catholic church simultaneously. A 'balance' must be made by the student, just as it had to be made by the historical figure in question.

The appearance of an ability to understand multiple causality in straightforward experimental situations is not a very useful indicator of how the concept will be used in the real world. For instance, the first evidence of logical multiplication with simple matrices is found at approximately eight

or nine years of age. Whether this indicates that by ages nine to eleven the concept may be ready for use on classroom material still needs a great deal of investigation.

SOCIAL SCIENCE CONCEPTS	COGNITIVE ACQUISITIONS
2. The fundamental uncertainty of historical or political predictions of outcomes - the possibility of calculated guesses greater than chance. The conception of outcomes as the results of stable, identifiable determinants plus accidental, fortuitous determinants.	The ability to think probabilistically. The idea that combinations of insufficient causes can render an outcome more probable, i.e. more likely to occur.

The following example was presented and discussed at some length. Suppose we can demonstrate that certain long-term developments in the social structure or economic nature of a country tend to make it move toward liberalism. We can take 19th Century England as a case in point, and show certain conditions and events which led to a wider distribution of social, political and economic power. Then we can shift to Russia during the period 1870-1910, and find conditions and events similar to those which apparently led to the liberalizing of English society. We may ask the student to imagine that he is studying Russian society in 1910, and ask him to predict the future development of Russia. Contemporaries claimed that Russia was on the path toward liberalism because factors similar to the British case were present. Then a fortuitous event made its appearance, i.e., World War I. This and the consequent destruction of Czarist political, economic and military power turned the long-range factors toward Bolshevism and away from traditional liberal conceptions of government. Hopefully, this would demonstrate to the student what is meant by probabilistic causation, specially weighted events and the alterations of long-term outcomes.

History and political science sometimes make predictions of outcomes, although all the causal information desirable is seldom available. The predictions take the form of educated guesses, of chance modified by what one knows about the situation. The real outcomes are the results of typical developments of stable or quite inevitable determinants continually acting on situations with, in some cases, an accidental, fortuitous event playing a catalytic role.

It would be a tremendous service to children if, as well as historical narrative, we could teach them the 'uncertainty structure' of great amounts of subject matter which will be facing them soon. This is in contrast with the

usual physical science model in which certainties are taught, even though in later years the student will have to modify this learning. This uncertainty principle permeates all social science. Children are initially extremely absolutist in the type of information they will search out, accept, and retain, but they lose some of this rigidity in late childhood or adolescence. If we can reach them at this period of relative mobility they may accommodate some substantial notions of probability and inference.

SOCIAL SCIENCE CONCEPTS	COGNITIVE ACQUISITIONS
3. Specific concepts such as "liberty", "power", "legal process", "regime", "coalition" and governmental tables of organization, authority relations, and related classifications of the hierarchical type.	The ability to classify and to group hierarchical classes to relational structures, and to deal with abstract concepts.

Multiple classification and relational understanding probably underlie most abstract thinking or cognition as we normally conceive them. The child of 10-11 years has mastered the rational manipulation of classes, relations, unit measurements, and numbers insofar as concrete media are concerned. As he makes the transition to analogous operations on the Piagetian formal level he is capable of meaningful use and comprehension of certain abstract terms and concepts. As a single example, the child cannot grasp the essence of an organization table, (e.g. chain of command, spheres of jurisdiction, interlocking authority), unless he has some mastery of relational structures and superordinate, part-whole classifications as described in systems of logic.

In general, a certain minimum, specific vocabulary or concept level is required to discuss the various social sciences. At some point one is certainly going to introduce a concept like "power" without offering auxiliary definitions, innumerable examples, or a concrete representation. The child in the formal period of intellectual development can deal with reality as it is directly presented to him, as well as comprehend statements <u>about</u> reality, propositions, associations, and hypotheses. Thus he can grasp an abstract idea when it is suitably presented. He is essentially capable of dealing with problems in a truly logical way, deductively and inductively.

SOCIAL SCIENCE CONCEPTS	COGNITIVE ACQUISITIONS
4. The possibility of across-instance generalizations about historical or political processes,	The concept of invariance amid variance, or "conservation: in a generalized sense. Common principles or generalizations in

e.g., common causal patterns involved in any revolution, or any political process resulting in a new congressional law.	the face of diversity of appearances.

The principle of conservation, which is seen in a wide variety of dimensions or areas (e.g., number, length, area, general aize, substance, weight and volume), constitutes an integral aspect of logical thought for Piaget's theory of development. Conservation is defined as that condition when certain attributes are viewed as constant or identical in the face of irrelevant manipulation or change. Thus, the quantity of weight is con er:ed even though the shape of an object may change, because nothing is added or taken away. The concept of conservation in various areas, e.g., space, length, number, quantity, are not all mastered at the same time or generalized to all forms of presentation. However, the 10 or 11 year-old child generally has the capacity to understand that, in this world of flux and disorder, certain things stand still or remain constant even in the midst of change.

Most event-generalizations in the social sciences may be viewed as examples of conservation. These may take the form of generalizations or commonalities across time or instances within a given time period. There may be common causal patterns, for instance, in conflict resolution or political process which result in the passage of legislation. These constancies have to be accepted by the student if historical precedent or political generalities are to have any meaning. The failure to derive any generalities or common threads from traditional narrative history is the commonest failing in secondary pupils and college students.

SOCIAL SCIENCE CONCEPTS	COGNITIVE ACQUISITIONS
5. The nature of "facts" upon which historical and political generalizations are built. The necessity of inference even at the lowest levels of the structures. The process by which new facts upset previous generalizations. How bias may occur in reporting events.	The knowledge of potential disparity between appearances and reality or that things are not always what they seem. Statements of "fact" are often inferences on the best evidence.

This category is closely related to the conservation skills and classification abilities that were covered previously. Fact materials are generally inferences based on the best available evidence and subject to the perceptual and conceptual orientation of the observer. Things may appear literally, visually,

or conceptually one way yet differ significantly in certain "reality" dimensions. For Piaget, the possibility of disparity between appearances and reality rests upon the perceptually based approach as distinguished from the logical-mathematical reality found in the final stage of cognitive development. The precursors of this dichotomy are found in the child's personal actions upon concrete media. The child gradually discovers and distinguishes what effects his actions have on reality, what changes are possible, and what remains invariant in the face of his actions.

There is a great number of possible examples in history or political science. The current civil rights issue centers on the disparity between apparent constitutional guarantees of speech or voting rights and the "real" conditions of widespread second-class citizenship. Whenever there are conflicting views or interpretations of the same historical-political event the disparity question is present. Thus, the French Revolution offers a large body of data for sociological or economic or political or military-strategic analysis and interpretation. Each of these viewpoints has its merits and limitations and the student of history must reconcile the apparent contradictions or differences in forming an overall picture of a complex event. The presentation of widely differing viewpoints on a single sequence of events or issues relates to the question of uncertainty levels and the degree to which children can tolerate complexity or open-endedness in problem resolution. Absolute fact presentation and complete reliance on a particular textbook narrative explanation can eliminate any concern for uncertainty levels and complexity tolerances.

SOCIAL SCIENCE CONCEPTS	COGNITIVE ACQUISITIONS
6. Intelligent analysis of political and historical facts and the ability to search for facts not available in order to test hypotheses. Ability to participate in the historian's and political scientist's job of <u>creating</u> new knowledge vs. understanding previous knowledge.	The ability to deduce as well as induce, to pose hypotheses about causal structure and then search for relevant evidence, and to draw inferences from an array of facts. (Age attained, 12 to 15 years).

It was pointed out that many professional historians fail consistently to meet this "hypothesis" criterion. Whatever position they accept is taken as the defensible one and possibility of disproof (the null hypothesis) is seldom considered. In general, the creation or discovery of new information, as compared with understanding established knowledge or principles, demands some form of the

hypothesis-deduction process. It operates in the familiar "if-them" suppositions regarding historical events; e.g., if Germany had not sent the Zimmerman Note to Mexico and had British Intelligence not intercepted the message and turned it over to the U. S. State Department, could American involvement in World War I have been circumvented?

SOCIAL SCIENCE CONCEPTS	COGNITIVE ACQUISITIONS
7. Concepts of equality, justice tempered with "equity", minority rights, freedom within limits.	Relatively mature moral judgements and knowledge.

It was pointed out that many concepts of human behavior and historical record such as power, legal systems, judicial processes, equality, majority-minority rights, and general social relationships demand a basic comprehension of ethics and morality. Understanding and empathy for these terms is a pre-requisite for such processes as understanding changes over time and for making cross-cultural comparisons. Research by Piaget and others has shown that a moral structure is fairly well established by the age of ten or twelve.

SOCIAL SCIENCE CONCEPTS	COGNITIVE ACQUISITIONS
8. Historical and political processes are in part explained by the psychology of individuals - by their wishes, fears, suspicions, and so on.	The rudiments of a knowledge of "human nature", e.g., motivational determinants, adult irrationality and fallibility - why people act as they do.

The basic rationale for the creation, stability and enrichment of the social sciences focuses upon the behavior of human organisms. Knowledge of the essential determinants of human behavior permits the study of man as a social animal and hopefully leads to the prediction of human behavior, event structures, and response patterns, given sufficient antecedent information. The child's individual experiences with family, school and especially peer group interactions provide excellent background material for the introduction of such concepts as compromise, conflicts of interests and biased viewpoints.

SOCIAL SCIENCE CONCEPTS	COGNITIVE ACQUISITIONS
9. A tolerance of conflict of interest and attitude, and an acceptance of the need for compromise, of "bad" positions held in good faith (and to be respected even if disagreeable), of how points of view depend on the	The presence of moderately well developed role-taking skills. The ability to shift perspectives or to see the other person's point of view.

nature of the facts available, and of the possibility of biased reporting.

This item is naturally related to the psychological determinants discussed in Item 8. Role-taking skills appear basic to understanding much of everyday human behavior; they are essential to comprehending shifting perspectives of problems and to developing tolerance toward points of view of which one does not approve. These skills would also be relevant to much of the material usually covered in current events sections of social studies courses. Role-playing skill and knowledge form the keystone of all successful diplomacy, past and present. They could be used to elaborate the usually-neglected role of the loser in historical analysis.

SOCIAL SCIENCE CONCEPTS	COGNITIVE ACQUISITIONS
10. The role of persuasive manipulations as a weapon in changing power structures, in effecting political outcomes; e.g., what <u>really</u> happens in Congressional committees, caucuses and conventions.	Concept of persuasion and argument (vs. force) as instrumental behavior in interpersonal situations.

These concepts were presented but not discussed.

SOCIAL SCIENCE CONCEPTS	COGNITIVE ACQUISITIONS
11. The ability to comprehend historical "time lines" and appreciate that historical events occur simultaneously or successively.	The concept of time as a continuous, fixed rate, measurable medium in which events take place.

These concepts are probably more important to historical presentations than to political science problems. Children of 7-8 years generally can deal adequately with short time considerations. Although understanding of extremely large time intervals probably does not stabilize until middle adolescence, historical time lines as a curriculum device could be profitably used much earlier.

<u>Conculsion</u>

Many of the above categories may be economically compressed or subsumed under group headings. There is a marked interrelation, which may reflect the unified view Jean Piaget has of the nature of intelligence. As a single example, multiplicative classification and relationality skills may well underlie

many of the specific categories presented in this initial schema.

Some of the other problems which concerned the discussants included definitions of "structure" in developmental psychology and in content-specific social sciences; the pros and cons of academic acceleration; the inclusion of controversial subject matter; and the dangers of radical curriculum alterations without comprehensive teacher preparation, appropriate new textbooks and co-operation from school superintendents. It was suggested that analysis in depth and long-term concentration on selected major historical events or periods (as compared with the usual redundant narrative) might facilitate the acquisition and utilization of concepts of structure.

Particular emphasis was placed on the potential role of individual "action" sequences as an influence on curriculum formation. Research seems to show that students who engage actively in problem-selection, data collection and verification learn much more readily than others. This result agrees with recent theories concerning the acquisition of knowledge, which see the resolution of conflicts and solving of problems as stimulating to students because of the satisfaction they get in finding solutions.

An important question that remains open is: What subject matter offers the best potential for the acquisition of the concepts? Is there some particular subject matter that would make initial acquisition of the essential concepts easy, and which also facilitate generalization of the concepts to other subject matter?